

The glycemic index and glycemic load are a weak form of low-carb strategy. The logical problems and the limited experimental proof of their efficacy make their use questionable as a primary strategy. They might, however, be of some use, since they still encourage carbohydrate restriction. Two bowls of cereal have the same gi as one. If there is not much carbohydrate (or really much glucose) in a food, it will have a low gi, but it could still have a large effect if you consume a lot. The glycemic load attempts to correct this problem. The glycemic load (gl) is defined as the gi multiplied by the grams of carbohydrate in a sample of a particular food.

Obviously, gl is still an intensive variable. You still have to know how much is consumed. More important, are you really sure that gl will really be different from total carbohydrate, which is easier to calculate? There is also the overall character of using gl: a slice of white bread has a high gi. The gi will go down if you smear a tablespoon of butter on the bread. It will go down still further if you add two tablespoons of butter. If you could somehow butter infinitely, until for all intents and purposes you have pure butter, you would have a $gi = 0$, which is probably not helpful for those who want to use the gi as a guide to eating.

One final ambiguity: gi measures blood glucose. Fructose, a sugar of great current interest (because it is 50 percent of sucrose and slightly more than 50 percent of high-fructose corn syrup), is partially converted to glucose in two hours, which is why the gi of fructose is 20 and not zero. In fact, more is converted after that time, severely compromising any assertion about the differences in effect of the two sugars. Sucrose has a gi of 70, which is roughly the average of glucose and fructose. Thus, ice cream has a lower gi than potatoes. Yet now we can't recommend ice cream. The glycemic index and glycemic load are a weak form of low-carb strategy. The logical problems and the limited experimental proof of their efficacy make their use questionable as a primary strategy.

They might, however, be of some use, since they still encourage carbohydrate restriction. The original questionnaire given to medical students asked one question about the glycemic index. Intellectually, the glycemic index was an important idea. It followed the same principle as low-carbohydrate diets, and was seemingly of practical value. The intention of the glycemic index was to address the experimental effect of carbohydrate on blood glucose. The glycemic index addresses the old idea, pretty much a dogma when I was in school, that simple sugars would cause a rapid rise in blood glucose, but complex carbohydrate—which at that time still meant polysaccharides (starch)—would not.

The idea was questioned at some point, however, and it turns out that when you actually measure the effect of foods on blood glucose, it's not easily predictable—that is, it must be determined experimentally. Glycemic index (gi) is precisely defined as the area under the blood glucose time curve during the first two hours after consumption of 50 grams of carbohydrate-containing food. In other words, it is the total amount of blood glucose for a fixed time period after ingestion. Whatever its promise, low-gi diets have evolved to be a politically correct form of carbohydrate restriction, and it is questionable if they have any value at all.

Eric westman, who Has experience with both kinds of diets, put it well: “if low-gi Is good, why not no-gi?” Gi is mainly influenced by the absolute oncentration of Glucose in the food, the extent to which glucose appears in the Blood (not necessarily from the food itself), and the quantity Of other nutrients such as fat or fiber in the carbohydrate- Containing food that might slow the digestion or absorption Of carbohydrate. The individual personal variation makes it Whaddaya know? Doubtful that gi diets are useful at all.

In comparison to simply Reducing carbohydrate, low-gi strategies are complicated and Require looking up and calculating values, a feature that might Be appealing to some, but is probably annoying to most. The difference between intensive variables, such as caloric Density, and extensive variables, such as total carbohydrate Eaten, was brought out at the beginning of the quiz. Gi is an Intensive variable. Two bowls of cereal have the same gi as one. If there is not much carbohydrate (or really much glucose) in a Food, it will have a low gi, but it could still have a large effect If you consume a lot.

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How can you do both without saying “low-carbohydrate” out Loud? Tliis tangled web is woven out of the failure to face scien- Tific facts. This aspect of the nutritional crisis is probably best Addressed by ignoring glvcemic index altogether. The work of volek and Forsythe provides a good reason to focus on the carbohydrate content of Your diet. What about the type of carbohydrate, though? In other words, is Glycemic index important? Is fructose as bad as they say? Consistent with The small perturbation caused by fructose compared to glucose, as shown In the previous chapter, we have a good general principle: no change in the Type of macro nutrient—carbohydrate or fat—will ever have the same kind Of effect as replacing carbohydrate across the board with fat.

Hunger What it is, what to do about it In 2008, David Jenkins compared a diet high in cereal with a low-glycemic index diet. 3 As I explained in chapter 2, the glycemic index is a measure of the actual effect of dietary glucose on blood glucose. Pioneered by Jenkins and coworkers, a low-gi diet is based on the same Rationale as a low-carbohydrate diet: that glycemic and insulin fluctuations pose a metabolic risk. Gi emphasizes “the type of carbohydrate,”

Thus offering a politically correct form of low-carbohydrate diet. As stated in the 2008 study: We selected a high cereal fiber diet treatment for its suggested health benefits for the comparison so that the potential value of carbohydrate foods could be emphasized equally for both high cereal fiber and low-glycemic index interventions. (Emphasis added) Diabetes After the completion of the twenty-four-week study Jenkins concluded:

“In patients with type 2 diabetes, 6-month treatment with a low-glycemic index diet resulted in moderately lower HbA1c levels compared with a high-cereal fiber diet.” Coincidentally, on almost the same day that David Jenkins’s study came out, Eric Westman’s group published a study that compared a low-gi diet with a true low-carbohydrate diet. 4 The studies were comparable in duration and number of subjects, and a direct comparison (figure 10.1) shows that the true low-carbohydrate has much greater benefits—hence the quotation from Dr. Westman at the head of Glycemic Index Politically correct low-carbohydrate The original questionnaire given to medical students asked one question about the glycemic index. Intellectually, the glycemic index was an important idea. It followed the same principle as low-carbohydrate diets, and was seemingly of practical value.

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Low-fat products are Still everywhere and low-fat is still recommended in one way or another. The diet-heart hypothesis holds that lipid in your diet, particularly satu- Rated fat, will raise one or another lipid fraction in your blood, which will In turn cause you to have a heart attack. Theyve put it to the test—big, Expensive clinical trials with tens of thousands of subjects, hundreds of Millions of dollars—and it consistently fails. To figure out whats going on, And to avoid the path to poor health, you have to understand the details.

Some of the details involve more chemistry. Many terms in the popular Media are used incorrectly and contribute to the current crisis. A little Precision will help you understand the problem. First, you need to know that the term lipid refers to a diverse collection Of chemical compounds, all of which are sparingly or not at all soluble in Water. The group includes fatty acids, fats and oils, cholesterol, and deriva- Tives of these compounds. Directly applicable here are the fats and oils and Their constituent components, the fatty acids and glycerol. Wetl look at fat Structure and the meaning of saturated and unsaturated fat. The crux of the crisis is the

packaging of lipids into complex units, the Lipoproteins (ldl, hdl, and others) that transport cholesterol and fat. These particles are targeted as surrogate markers for cardiovascular risk. As surrogates, they are of limited value. The extent to which they truly indicate risk is controversial. Much of the revolution in nutrition revolves around facing the fact that a surrogate is not the same as actually getting what you know?

Sick. It is still important to be familiar with them, however. They will be part of your lipid workup when you get a clinical lab test. The big payoff will be wrapping your head around how fat interacts with carbohydrate, and looking ahead, we will try to understand how carbohydrate can be converted to fat, but, to a large extent, fat cannot be converted to glucose. We will want to grasp how it is that we cannot use our fat stores to keep glucose at normal levels and how it is that the amount of dietary carbohydrate might be more important than the amount of dietary fat. In other words, is

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